DISTRIBUTION OF BLINDNESS IN PENNSYLVANIA

Alfred Cowan & Bernice C. English

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AMERICAN FOUNDATION
FOR THE BLIND INC.

v. 40 No. 3

success to this hyperdevelopment of their creative faculties because of deafness. Beethoven, Thomas Edison, and Sir Joshua Reynolds are notable examples. Though it is commonly said that they were great in spite of their infirmity, would it not be more correct to say because of their infirmity?

Interest in a hobby will help to provide needed compensation and prevent idle hours for brooding and introspection. In my own case the hobby of stamp collecting has afforded me much pleasure and satisfaction besides helping to tide me over many a rough stretch.

To quote Drs. Gordon Berry and George Shambaugh, the main job in psychologic adjustment is in assisting the hard of hearing to pass through the psychologic storm of refusing to admit the truth and to emerge into the calm of acceptance of their handicap, when they can at last concentrate on lip reading, electric hearing aids, and social contacts renewed through a league for the hard of hearing. The warm understanding of the physician can do much to help the sufferer. It is not sympathy he needs but reassurance and encouragement. Sympathy merely increases his self-pity and makes adjustment so much the harder. In the last analysis the adjustment must come from within, not from without, and each individual has the power to attain this adjustment and, through it, serenity for himself and happiness for his friends. Through kindly guidance and understanding the physician has a unique opportunity to help these people attain this desired adjustment.

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ABSTRACT OF DISCUSSION

Douglas Macfarlan (Philadelphia): This paper is on a subject with which every otologist should be familiar. The psychologic damage of deafness is really a greater damage than the deafness itself. Never say, "Nothing can be done for you." Much can be done.

As physicians we are looked to as leaders in this matter. The deaf come to us first. We should know how to classify the types of deafness, the degrees of deafness. We should anticipate the degree of economic and social disability. We should know something of lip reading; we should have the names and addresses of teachers of lip reading. We should know where is the nearest league for the hard of hearing; we should know of the American Society for the Hard of Hearing, and we should subscribe to the *Auditory Outlook* and the *Volta Review*—both are full of invaluable literature for otologists and patients. We should know of the nearest school for deaf children and of the facilities for lip-reading instruction for hard-of-hearing day school children in our public schools. We should know how to sort the deaf child from the heard-of-hearing child. We should know what to say to the parents of these children as to their psychology and education. We should follow up every case to direct its proper placement, its psychologic adjustment, toward the proper understanding of the situation at home and in the school. We should advise on proper trade training, and with adults we should consider the fitness of occupation and the selection of better occupation. We should know of the benefit of hearing aids, of their shortcomings as well as their help.

Finally, we should always encourage and stand by the deaf and the hard of hearing. We should make every effort to guard against further hearing loss. We should check the status of the deafness periodically.

If we know of all these things and use some of this knowledge, we will never be accused of believing or saying that nothing can be done for the deafened.

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DISTRIBUTION OF BLINDNESS IN PENNSYLVANIA[*]

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This presentation is offered with the hope that it will supply some useful information to ophthalmologists, social workers, and others interested in the prevention of blindness. The causes of blindness for 18,193 eyes, as shown in the ophthalmologic reports of applicants for grants from the blind pension fund, follow closely the proportion of those which were tabulated from the first 11,852 blind eyes and read before the Section on Ophthalmology of the American Medical Association at Kansas City, Missouri, May 13, 1936.[1] As was done in that report, blind eyes and not persons are listed.

An eye was considered blind if the visual acuity was less than 20/200. For the purposes of this article many of the utilized reports were of applicants with only one blind eye. All of the tabulated eyes, therefore, are not of persons receiving grants from the blind relief fund.

The total number of known blind persons (visual acuity of less than 6/60 or 20/200, both eyes) in the state of Pennsylvania is 14,721, in the proportion of 1 to 654 of the general population. The actual number of blind persons is greater than this; but this number is about 33 both individual lessons and group instruction. There are free classes for the poor. The league is associated with the State Rehabilitation Bureau, through which it obtains special training for those of the unemployed who have lost their jobs because of deafness, and helps to place them in new jobs where their deafness is not a handicap. It provides a definite social outlet, especially for the middle-aged woman who is not engaged in business and has no family. She can now listen to lectures and converse with her friends through the group earphones. She can serve on committees and help in the work of the league besides enjoying the recreational activities.

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[*] Read before the Section on Eye, Ear, Nose, and Throat Diseases of The Medical Society of the State of Pennsylvania, Pittsburgh Session, Oct. 6, 1936.

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[1] *J. A. M. A.*, 107:757 (Sept. 5) 1936.

The time must come when educational authorities will institute hearing surveys in the public schools. Many of the unsuspected hearing defects of childhood can be corrected by proper therapeutic measures, whereas, if left untreated, they may become permanent defects in later life. At the present time in Pennslyvania there is no provision for the education and training of the hard-of-hearing child in the public schools. The state schools for the deaf are for the totally deaf and should not be forced to accept children with a partial loss of hearing, nor do they belong in these institutions. These children at present are forced to receive training from private teachers or the classes conducted by the local leagues for the hard of hearing. Educational authorities should provide classrooms with amplification equipment and skilled lip-reading teachers for these children in the public schools.

Adjustments

The first corrective measure, that of lip reading, is readily acquired by children and young adults. It becomes increasingly difficult as the individual grows older. Therefore, it is of great importance that this training should be instituted as early as possible. It is astonishing how proficient some individuals become at reading lips. Recently a girl was graduated from high school with honors, although she was almost totally deaf.

The second corrective measure is the mechanical or electric hearing aid. Group earphones are available for teaching purposes. In this modern age a great deal of the burden has been lifted from these handicapped people. More and more of the churches, theaters, and public halls are being wired with amplification equipment so that the hard of hearing are no longer shut off from religious, social, and recreational activities. By plugging in the connection at the designated seats they can adjust the amplification of the earphones for any desired intensity. Any number of seats can be wired for this purpose at a relatively low cost.

The individual electric earphone is a great help to those who can and will use it. It has its drawbacks, as it is bulky and expensive, gets out of order, gives rise to annoying adventitious sounds, and magnifies extrinsic noises which the deafened person did not know to exist. It is not yet perfected and must be worn almost constantly for some time before the individual becomes used to it. However, once the individual becomes educated to the changed and distorted sounds, it becomes almost essential to him. The advice of the otologist should be sought as to which type of phone is best suited for individual need as the phone which will help one person may not help another. A word of warning should be said about the recent high pressure advertising of bone conduction instruments. They will help but a small percentage and only if the conductive type of deafness strongly predominates. Moreover, many of these cases are amenable to treatment.

It is usually quite difficult to persuade a hard-of-hearing person to wear an earphone. Nobody wishes to advertise the fact that he has an infirmity. Consequently there are a million people going through life and missing half of it because they are ashamed to wear little devices in their ears. Ostrichlike they stick their heads in the sand trying to conceal what everyone already knows. It took over a century to overcome the prejudice of the public against wearing eyeglasses for the same reason. Just as the public no longer considers the wearing of glasses a sign of infirmity, so, as the wearing of earphones becomes more common, it will no longer be considered a stigma.

The third corrective measure for the hard of hearing is the psychologic. As human beings we crave perfection, and the hard of hearing deceive themselves and their friends as long as possible trying to conceal their imperfection. In young individuals who are hard of hearing, or if there is a history of hereditary deafness so that they may become hard of hearing later in life, it is very important to encourage the development of creative activities, such as writing, painting, inventing, and scientific research. The deficiency of objective contacts with the outside world can be largely counterbalanced by compensatory development of the subjective faculties of the personality. In fact, impaired hearing may prove a real asset instead of a handicap to anyone whose creative instincts are highly developed. Some of our greatest geniuses probably owe part of their per cent higher than estimations made before the enactment of the act providing grants for the blind. Probably the most important factor to account for this large increase is that a certain number of persons who are hopeful of having their vision restored and who would not care to call themselves blind if merely canvassed assume an entirely different attitude if a pension is at stake.

TABLE I

Causes of Blindness

Congenital Anomalies		
Glaucoma	85	
Defective globes	359	
Albinism	10	
Anophthalmos	14	
Neuroretinitis	2	
Coloboma of choroid	6	
Cataracts	333	
Optic atrophy	48	
Coloboma of optic nerve head	2	
Total (4.7%)		859
Traumatism		
Penetrating wound of globe	1340	
Uveitis	140	
Sympathetic ophthalmia	279	
Keratitis	129	
Insect bite	4	
Burns	190	
Hemorrhage into vitreous	7	
Rupture of choroid	6	
Cataracts	96	
Detachment of retina	29	
Optic atrophy	132	
Optic tracts and centers	4	
Neuroretinitis	22	
Total (13%)		2378
Lids		
Carcinoma of lids		6
Conjunctiva		
Ophthalmia neonatorum (3.2%)	588	
Purulent conjunctivitis	85	
Gonorrheal conjunctivitis	21	
Diphtheritic conjunctivitis	2	
Trachoma (.56%)	104	
Photophthalmia	4	
Pemphigus	16	
Pterygium	13	
Total		833
Globe		
Malignancy	5	
Glaucoma, chronic } 12.9%	2199	
Glaucoma, acute }	151	
Glaucoma, juvenile	8	
Tumors	4	
Exophthalmos	2	
Total		2369
Lens		
Cataracts, senile (24.2%)	4409	
Cataracts, juvenile	34	
Cataracts, diabetic	8	
Cataracts, tetany	2	
Cataracts, endocrine	2	
Total		4455
Cornea		
Keratitis, interstitial (1%)	192	
Keratitis, ulcerative	271	
Keratitis, undetermined	13	
Keratitis, exposure	2	
Keratitis, marginal	1	
Corneal dystrophy	12	
Keratoconus	11	
Keratomalacia	2	
Keratitis, rosacea	2	
Keratitis, phlyctenular	6	
Total		512
Uvea		
Uveitis (13.4%)	2457	
Choroiditis, atrophic	706	
Choroiditis, suppurative	5	
Senile macular degeneration	6	
Total		3174
Optic Nerve		
Optic atrophy, simple (9.6%)	1765	
Papilledema	94	
Neuroretinitis	513	
Total		2372
Retina		
Retinitis, vascular (2.4%)	443	
Retinitis, diabetic	151	
Retinitis, nephritic	46	
Retinitis, pigmentosa	390	
Detachment of retina	130	
Senile macular degeneration	37	
Total		1197
Vitreous		
Hemorrhage into vitreous	24	
Abscess of vitreous	2	
Total		26
Miscellaneous		
Amaurosis	4	
Nystagmus	4	
Amblyopia	4	
Total		12
Grand Total		18,193

The general population, the number of known blind, the proportion of blind, and the number of specialists and the hospitals in each county are given in Table II.

A study of the accompanying map should prove interesting. The first line of figures in each state indicates the general population; the second line, the number of blind persons and their proportion to the general population; and the third line, the number of specialists in ophthalmology and their proportion to the general population. In the 9 shaded counties there is neither a public hospital nor a physician specializing in diseases of the eye.

With few exceptions the number of blind in each county is in disproportion to the availability of proper care and treatment from the standpoints of the number of specialists, the accessibility to them, and the number of institutions equipped for handling diseases of the eyes. The proportion of blind persons is very high in all of the shaded counties with the exception of Cameron; but it must be considered that, with a population of only 5307, a difference of 5 more blind persons would increase the proportion 100 per cent. The rule holds, however, that there are more blind in those counties which are sparsely populated and in which it is difficult to obtain adequate treatment without great inconvenience and expense to the patient. The proportion of blind is exceptionally high and the number of specialists low in areas of widely scattered population such as Potter, Clinton, Tioga, Bradford, Susquehanna, Pike, Monroe, and Wayne counties. On the other hand the propor-

Table II

County	*Population*	*Blind Population*	*Ratio of Blind to Sighted Persons*	*Number of Specialists*	*Number of Hospitals*	
					Public	*Private*
Adams	37,128	69	538	2	1	0
Allegheny	1,374,310	1657	829	42	32	14
Armstrong	79,298	164	484	3	1	0
Beaver	149,062	183	815	6	3	0
Bedford	37,309	97	385	2	0	2
Berks	231,717	259	895	17	3	0
Blair	139,840	239	585	9	3	0
Bradford	49,039	166	295	4	1	0
Bucks	96,727	180	537	3	2	0
Butler	80,480	141	571	4	1	0
Cambria	203,146	237	857	12	5	0
Cameron	5,307	5	1061	0	0	0
Carbon	63,380	119	533	5	1	0
Center	46,294	201	230	2	2	1
Chester	126,629	280	452	4	5	0
Clarion	34,531	65	531	2	0	0
Clearfield	86,727	180	482	5	3	0
Clinton	32,319	82	394	2	2	1
Columbia	48,803	96	508	3	2	0
Crawford	62,980	194	325	4	2	1
Cumberland	68,236	100	682	4	1	0
Dauphin	165,231	195	847	18	3	2
Delaware	280,264	293	957	7	4	2
Elk	33,431	49	682	1	2	0
Erie	175,277	223	786	7	4	1
Fayette	198,542	353	562	7	3	0
Forest	5,180	15	345	0	0	0
Franklin	65,010	122	533	5	3	0
Fulton	9,231	18	513	0	0	0
Greene	41,767	98	426	1	0	0
Huntingdon	39,021	66	591	2	1	0
Indiana	75,395	156	483	4	1	0
Jefferson	52,114	113	461	3	2	0
Juniata	14,325	34	421	0	0	0
Lackawanna	310,397	403	770	16	11	0
Lancaster	196,882	295	667	13	3	0
Lawrence	97,258	142	685	4	3	0
Lebanon	67,103	90	746	2	2	0
Lehigh	172,893	238	726	11	2	1
Luzerne	444,409	515	863	22	7	0
Lycoming	93,421	170	550	7	2	3
McKean	55,167	91	606	6	2	0
Mercer	99,246	179	554	5	4	0
Mifflin	40,335	64	630	2	1	0
Monroe	28,286	71	398	1	1	0
Montgomery	265,804	329	808	12	6	0
Montour	14,517	38	382	3	1	0
Northampton	169,304	227	746	8	2	2
Northumberland	128,504	201	639	5	2	0
Perry	21,744	71	306	0	0	0
Philadelphia	1,950,961	2957	660	128	1	57
Pike	7,483	24	312	0	0	0
Potter	17,489	52	336	0	1	0
Schuylkill	235,505	345	683	7	5	1
Snyder	18,836	54	349	1	0	1
Somerset	80,764	159	509	2	2	3
Sullivan	7,499	14	536	0	0	0
Susquehanna	33,806	74	457	2	1	0
Tioga	31,871	116	275	0	1	0
Union	17,468	48	364	1	1	0
Venango	63,226	88	718	8	2	0
Warren	41,453	84	493	4	1	0
Washington	204,802	338	606	8	5	0
Wayne	28,420	88	323	1	1	0
Westmoreland	295,795	383	772	14	4	1
Wyoming	15,517	31	501	1	0	0
York	167,135	293	570	11	2	1
Totals	9,631,350	14,721	654	584	169	94

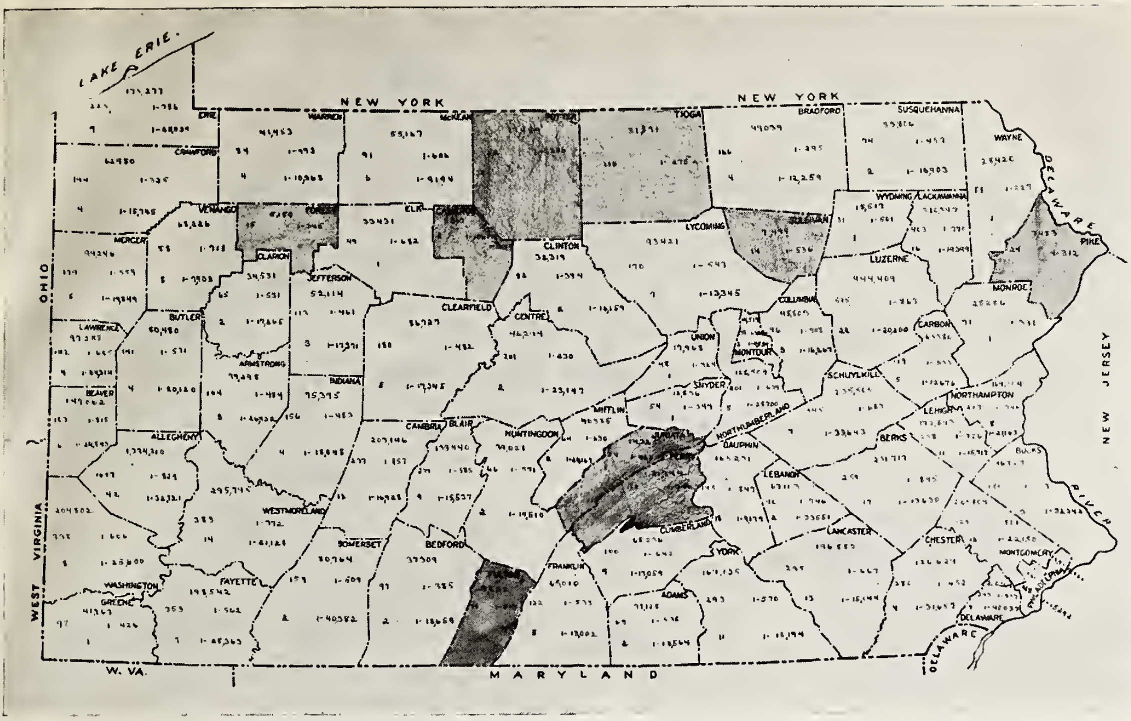

Fig. 1.—Map of Pennsylvania. The first line of figures in each state indicates the general population; the second line, the number of blind persons and their proportion to the general population; the third line, the number of specialists in ophthalmology and their proportion to the general population. Counties without practicing ophthalmologists or public hospitals are shaded.

tion of blindness is low in thickly populated areas such as Allegheny, Berks, Lehigh, Lackawanna, Luzerne, Northampton, Philadelphia and Schuylkill counties which are well provided with specialists and hospital facilities. The figures for Philadelphia are not very flattering, but many factors may be mentioned to account for this. The very low proportion of blindness in Montgomery and Delaware counties, which are part of the same metropolitan district, should be credited to a great extent to the high-class facilities offered in Philadelphia to the residents of this area.

A special study is being made at the present time to determine the reasons for the large number of blind persons residing in Philadelphia. It is the duty and concern of ophthalmologists and other interested persons in each county in which the proportion of blindness is high to search for the reasons and correct them. The Council for the Blind is most willing to help in this work.

Much of the blindness throughout the state could have been either prevented or cured. Consider, for example, 3 important groups—traumatism, glaucoma, and senile cataract.

Although many precautions are taken against accidents to eyes, especially in large industrial plants, much remains to be done with regard to the preventive treatment of blindness from trauma.

The glaucomatous patient who is not conveniently located so that he can be kept under constant observation is certainly doomed. Of the 2350 eyes blind from glaucoma, according to the ophthalmologic reports, 1124 were operated upon, 689 were unoperated upon, 235 were inadequately treated, and 302 received no treatment whatever.

Senile cataract was the cause given in 24.2 per cent of the total number of blind eyes. Of the 4409 cataracts, 3374 were unoperated upon. It is true that some persons will eventually seek relief and that others offer a poor prognosis for various reasons; but it is also true that many of these old people remain needlessly blind through ignorance, poverty, and inaccessibility to medical centers.

CONCLUSION

We believe that it is the duty of the state, with the aid of the medical profession, to make an effort to supply facilities for the proper care of all persons suffering with disease of the eyes so that the number of needlessly blind may be considerably reduced.

Council for the Blind, Department of Welfare, Harrisburg.

ABSTRACT OF DISCUSSION

EDWARD STIEREN (Pittsburgh): Dr. Cowan, as state supervising examiner for pensions for the blind, has compiled statistics in a most lucid manner and is to be congratulated on the simplicity and clarity of this report.

The information conveyed in this compilation is in some instances gratifying and in others surprising. That Pennsylvania, one of the oldest states in the Union, should have 9 counties without wholly or partially trained practitioners in ophthalmology is beyond comprehension. It is true that these counties are sparsely settled, but each has a town of sufficient importance that an eye, ear, nose, and throat specialist is needed. For instance, Waynesburg, in Greene County, and Emporium, in Cameron County, are thriving towns of from 3000 to 5000 inhabitants, each having a large rural community from which to draw.

The percentage of eyes blind from traumatism is gratifyingly low for an industrial state. It is certain that eye injuries are becoming less frequent because of the safety measures to prevent them now in general use in all large industrial plants. Eyes are injured now in automobile accidents, small shops and garages, and in home accidents more frequently than in the large steel plants.

For the past 2 years in Pittsburgh the number of injured eyes on the Fourth of July has been practically nil. City Council, following conferences with ophthalmologists and groups interested in the preservation of vision, passed an ordinance, which is strictly enforced, prohibiting the sale and use of exploding fireworks of all kinds. If the use of air rifles, sling-shots, and bean-blowers could be eliminated, there would be a further reduction of ocular injuries.

The small percentage of blindness (3.2 per cent) from ophthalmia neonatorum we can look upon with pride, but the percentage is still too high. I have forgotten when Crede's plan of prophylaxis was first promulgated, but deSchweinitz stresses it in his edition of 1899, so that it has been in use for the past 40 years at least. In 1910, Fox, in his *Treatise on Ophthalmology,* stated that statistics showed that in the United States 30 per cent of the blind lost their sight as the result of ophthalmia neonatorum and its sequelae. Theobald, in his *Prevalent Diseases of the Eye,* 1906, quotes Magnus' statistics which showed that 24 per cent of the inmates of the institutions for the blind in the different countries of Europe owed their loss of sight to this one disease.

In the reduction of blindness from these 2 causes, traumatism and ophthalmia neonatorum, we have indeed achieved something, and the good work is being carried on with increasingly greater force.

It is impossible to determine the underlying cause o blindness from the reports sent to the supervising examiner in diseases of the cornea, uveal tract, retina and optic nerve, but it is obvious that a large percentag must be due to syphilis.

The resolution submitted to the House of Delegate of the American Medical Association in 1933, providin for the antisyphilitic treatment of afflicted pregnan women attending prenatal clinics (in certain clinic being as high as 30 per cent), will eventually result i reducing the number of blind or defective eyes fro this cause.

We cannot but view with regret the number of blin in Pennsylvania from glaucoma, 2352 instances in thi compilation. It is a reproach to us as ophthalmologist that we have no cure for glaucoma. At best we can b ameliorate the symptoms as we do not know the caus Constant supervision of these unfortunates is essentia and in localities where expert observation and treatment cannot be secured the percentage of blindnes from this cause will remain high.

The National Society for the Prevention of Blindness, being well organized and with an efficient cor of workers, is doing great work in the cause of prevention of blindness.

Would it not be possible, through co-operation wit the various county medical societies, for this organization to include among its manifold activities dissemination of knowledge regarding the seriousness of glauco that would reach the people of this commonwealth b printed matter and by radio? The counties not havin medical societies, Cameron, Forest, Fulton, Pike, an Sullivan, could be included in the propaganda from adjoining counties.

DR. COWAN (in closing): There has been a gre deal of discussion concerning the education of the publ in regard to glaucoma, ophthalmia neonatorum, a many other conditions which we consider as serio factors in causing blindness; but why is there n something more done in regard to cataract, a conditi which is so amenable to treatment? Why should the be so many blind with cataract? It proves witho question that those persons have been neglected fro some cause or other, probably most of them from la of education. Many persons with cataract are not liste and many that are not listed will be operated upo But it is appalling that 25 per cent of the blindness the state is due to cataract. This is an extremely important condition on which we should work.

THE CONTROL OF THE MENTALLY UNFIT*

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Control of the mentally unfit presents many difficulties and has many aspects of interest to the physicians, the community, and the state. The economic problem is of interest to all, as an ever increasing percentage of taxes is required to meet the demands for their care. Their relationship to crime is claiming the attention of courts and law-enforcement agencies. This subject may be interpreted to include all individua who are mentally ill, but for the purpose of th discussion it will be limited largely to the me tally defective and to the conditions that exist Pennsylvania.

In the Polk State School there are at the pre ent time 3089 patients enrolled, 2869 actual present and 220 on vacation or parole. The are 1125 applications pending. Polk Sta School has a population of more than 400

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* Read before a General Meeting of The Medical Society of the State of Pennsylvania, Pittsburgh Session, Oct. 7, 1936.